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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,914	01/14/2002	Shigeru Morita	0020-4948P	9939

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EXAMINER

WILSON, DONALD R

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 07/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/030,914	Applicant(s) MORITA ET AL.	
	Examiner Donald R Wilson	Art Unit 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 30 June 2003.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-7 is/are pending in the application.

4a) Of the above claim(s) 4, 5/4, 6 and 7 is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-3 and 5/3 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2,3,7</u> .	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s): _____ 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6) <input type="checkbox"/> Other: _____
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DETAILED ACTION**Response to Election of Species Requirement**

1. Applicant's election with traverse of the specie(a) the polymer of Example 1 as the fluorine containing polymer, i.e., a homopolymer of $\text{CF}_2=\text{CF}-\text{CF}_2-\text{O}-\text{CF}(\text{CF}_3)-\text{CF}_2-\text{O}-\text{CF}(\text{CF}_3)-\text{CN}$, and (b) ammonia as the cross-linking agent in Paper No. 10 is acknowledged. The traversal is on the ground(s) that the polymer structure in the claims is significantly related and the search and examination issues significantly overlap. This is not found persuasive because applicant has not traversed the stated reasons for the finding of lack of unity between the species under PCT Rule 13.1. Further, applicant has not submitted evidence, or identified such evidence now of record showing the species to be obvious variants, or clearly admitted on the record that this is the case. If applicant submits or identifies such evidence or makes a clear admission on the record then the election of specie requirement will be withdrawn. However, as previously pointed out, in either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. § 103 of the other invention.

2. The requirement is still deemed proper and is therefore made FINAL. Claims 4, 5/4 and 6-7 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected specie of the invention. Claims 1-3 and 5/3 are under consideration.

Objection to Specification

3. The disclosure is objected to because of the following informalities: At page 3, line 21, R cannot be " $-(\text{CF}_2\text{OCF}_2\text{CF}_3)_c$ ", because R needs to be a divalent moiety. Appropriate correction is required.

Claim Rejections - 35 USC § 112, Second Paragraph

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **Claims 1-3 and 5/3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

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6. The languages of Claims 1 and 3 are indefinite because of the terminology "may contain" (page 11, line 12, page 12, line 6), which makes it unclear as to whether or not the "may contained" items are present or not. It is suggested that applicant substitute the language "optionally contains" which the office has found to be acceptable.
7. Claim 1 is further indefinite because it is unclear in what way "R" can be a monovalent acid anhydride group.
8. Claim 2 is unclear as to the meaning of "said polymer cured" which lacks a specific antecedent and is awkward language. It is suggested that terminology such as "the cross-linked polymer" be substituted.
9. The language of Claim 3 is indefinite because the definition of E is so lacking in specificity and all encompassing that the claim fails to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim Rejections - 35 USC § 102(e)/§ 103(a)

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

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3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. **Claims 1-3 and 5/3 are rejected under 35 U.S.C. 102(e) as anticipated by Watakabe or**

Morken. Although not directed to the specie of fluoropolymer of the elected invention, these rejections are included because the teachings are relied upon in an obviousness rejection of the elected specie.

14. Watakabe discloses cured articles based upon the trimerization of a cyano group of a cyano-group containing fluoropolymer having a polymerization unit of $-\text{CF}_2-\text{CF}(\text{A}^1)-$ wherein A^1 is $-\text{O R}^1\text{CN}$, $-\text{R}^1\text{CN}$ or CN , and R^1 is a $\text{C}_1\text{-C}_{15}$ polyfluoroalkylene group which may contain an ether group (col. 2, lines 22-32). The vinyl compound containing the cyano group is preferably polymerized alone but may also be copolymerized (col. 5, lines 24-30). Cross-linking of the polymer by treatment with ammonia is specifically disclosed (col. 7, lines 14-21, col. 11, lines 21-25, and in Example 3, 4 and 17. Subsequent curing at temperatures of from 25 to 400°C, preferably from 100 to 400°C is also taught (col. 11, lines 37-45).

15. Morken discloses curing of a perfluoro elastomer having polymerized nitrile-containing fluorinated olefins and vinyl ethers, which are cross-linked by exposure to ammonia (col. 1, lines 57-67). Advantages of curing with ammonia gas include a low cure temperature by diffusion which avoids exposure of the polymer to heat during blending with curatives and other additives (col. 7, lines 23-33). Post curing at temperatures above 200°C is also taught.

16. **Claims 1-3 and 5/3 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'130**

in combination with Watakabe or Morken. The machine translation of JP'130 with assistance from the patent office Japanese language translator has been used to interpret the Japanese patent.

17. JP'130 discloses the homopolymerization of $\text{CF}_2=\text{CF}-\text{CF}_2-\text{O}-\text{CF}(\text{CF}_3)-\text{CF}_2-\text{O}-\text{CF}(\text{CF}_3)-\text{CN}$ in Example 3 (¶ 0019). It is also disclosed that the polymers of the invention can be cross-linked on the basis of the cyano group, although the details of any cross-linking reaction are not presented (¶ 0016). It would have been obvious to one of ordinary skill in the art to use known methods of cross-linking cyano group containing fluoropolymers such as those disclosed by Watakabe or Morken with the expectation of equivalence to other known methods of cross-linking. In the alternative, it would have been obvious to

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one of ordinary skill in the art to use exposure to ammonia gas to initiate curing because it has the advantage of a low curing temperature thus avoiding the exposure to heat during blending with curatives and additives as is taught by Morken.

18. Further, although Watakabe doesn't specifically disclose the elected specie of fluoropolymer being a $\text{CF}_2=\text{CF}-\text{CF}_2-\text{O}-\text{CF}(\text{CF}_3)-\text{CF}_2-\text{O}-\text{CF}(\text{CF}_3)-\text{CN}$ polymer, such a polymer is within the generic teaching of a polymer of the monomer $-\text{CF}_2-\text{CF}-\text{R}^1\text{CN}$ wherein R^1 is a C_1-C_{15} polyfluoroalkylene group which may contain an ether group, or not unobvious thereover. Thus, it would have been obvious to one of ordinary skill in the art to use as the cyano-group containing polymer in the method of curing a fluoropolymer taught by Watakabe a polymer of $\text{CF}_2=\text{CF}-\text{CF}_2-\text{O}-\text{CF}(\text{CF}_3)-\text{CF}_2-\text{O}-\text{CF}(\text{CF}_3)-\text{CN}$ as taught by JP'130.

Art of Interest/Technological Background

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. MacLachlan discloses the curing of fluoroelastomers with ammonia generating compounds and may be used as a basis of a future rejection of claims. Additionally, the references cited in the finding of lack of unity, JP'079, JP'742, JP'146, JP'926 and JP'546, are seen to anticipate non-elected species of the invention which could be used in a future rejection.

Future Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald R Wilson whose telephone number is 703-308-2398.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 703-308-2450. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications. The unofficial direct fax phone number to the Examiner's desk is 703-872-9029.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-2351.



Donald R Wilson
Primary Examiner
Art Unit 1713